

REMARKS

Applicant respectfully requests reconsideration of this application in view of the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in substantially the same order in which the corresponding issues were raised in the Office Action.

Status of the Claims

Claims 1-27 are pending. Claims 1, 6, 8, 15, and 22 are currently amended. Claim 5 is canceled. No claims are added. No new matter has been added.

Summary of the Office Action

Claims 5-7 and 17-18 stand objected to as depending from a rejected independent claim, but would be allowable if rewritten in independent form to include all intervening claim limitations.

Claims 1-4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,260,096 to Eskandari et al. (hereinafter "Eskandari").

Claims 1-4, 8-16, and 19-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of Eskandari.

Response to Objections

The Applicant respectfully submits that the Title has already been amended from "METHOD AND APPARATUS FOR SUPPORTING MULTI-FUNCTION PCI DEVICES IN PCI BRIDGES" to "METHOD AND APPARATUS FOR MANAGING BUFFERS IN PCI BRIDGES," as previously suggested by the examiner. Applicant appreciates the Examiner's recommendation and respectfully requests that the objection to the drawings be withdrawn.

Response to Rejections under 35 U.S.C. § 102(b)

The Office Action rejected claims 1-4 under 35 U.S.C. § 102(b) as being anticipated by Eskandari. Applicant respectfully requests withdrawal of these rejections because the cited reference fails to disclose all of the limitations of the claims.

CLAIMS 1-8

Claims 1-4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Eskandari. Applicant respectfully submits that claim 1 is patentable over the cited reference because claim 1 has been amended to include the limitations of the dependent claim 5, which has been objected to by the Office action as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and intervening claims. See Office action, mailed July 25, 2006, page 2. Accordingly, Applicant requests that claim 1, as amended, is patentable over the cited reference, and respectfully requests the rejection of claim 1 under 35 U.S.C. § 102(b) and the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 2-4 depend from independent claim 1, which is patentable over the cited reference, Applicant respectfully submits that dependent claims 2-4 are also patentable over the cited reference. Accordingly, Applicant requests that the rejections of claims 2-4 under 35 U.S.C. § 102(b) and the rejections under 35 U.S.C. § 103(a) be withdrawn.

Response to Rejections under 35 U.S.C. § 103(a)

The Office Action rejected claims 8-16, and 19-27 under 35 U.S.C. § 103(a) as being unpatentable over admitted prior art in view of Eskandari. Applicant respectfully requests withdrawal of these rejections because the combination of cited references fails to disclose all of the limitations of the claims.

CLAIMS 8-16, and 19-21

Claims 8-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of Eskandari. Applicant respectfully submits that claim 8 is patentable over the combination of cited references because the cited references fail to disclose all the limitations of claim 8.

Claim 8, as amended, recites:

A method comprising:

receiving first and second data transfer requests from a multi-channel PCI (Peripheral Component Interconnect) device, the first data transfer request corresponding to a first channel, the second data transfer request corresponding to a second channel;

initiating respective first and second delayed transactions corresponding to the first and second data transfer requests at a PCI bridge;

setting up a first pre-fetch buffer corresponding to the first delayed transaction, the first pre-fetch buffer having a first buffer fill watermark;

setting up a second pre-fetch buffer corresponding to the second delayed transaction, the second pre-fetch buffer having a second buffer fill watermark;

monitoring each of the first and second pre-fetch buffers to determine if the fill level of a buffer meets or exceeds its buffer fill watermark, that pre-fetch buffer being a first filled buffer;

and in response thereto,

connecting the multi-channel PCI device to the PCI bridge;

mapping a virtual buffer to the first filled buffer;

transferring data from the first filled buffer to multi-channel PCI device until the first filled buffer is empty; and

disconnecting the multi-channel PCI device from the PCI bridge.

(Emphasis added).

Applicants respectfully submit that claim 8 requires connecting the multi-channel PCI device to the PCI bridge in response to determining that the pre-fetch buffer is a first filled buffer while monitoring each of the first and second pre-fetch buffers to determine if the fill level of a buffer meets or exceeds its buffer fill watermark. Nothing in either the admitted prior art or Eskandari discloses at least this limitation.

The Office action concedes that the admitted prior art does not disclose setting or monitoring the first and second buffer fill watermarks. See Office action, mailed July 25, 2006, pages 4-5. In addition, Applicant respectfully submits that the admitted prior does not disclose connecting the multi-channel PCI device to the PCI bridge in response to determining that the pre-fetch buffer is a first filled buffer while monitoring each of the first and second pre-fetch buffers to determine if the fill level of a buffer meets or exceeds its buffer fill watermark.

Eskandari fails to cure the deficiency above with respect to the admitted prior art. Eskandari is directed to an electronic system having a bridge, and more particularly to bridge architecture for handling multiple write transactions simultaneously. (Eskandari, col. 1, lines 6-9). The bridge of Eskandari includes two buffers, data queue and transaction queue, and a queue controller. Data queue is a buffer having a first in first out

(FIFO) structure, receiving the write data for each transaction received by the slave logic. See col. 3, lines 11-12. In operation, the bridge attempts to match subsequent transactions with an enqueued transaction. See col. 3, lines 7-8. The bridge then determines whether the enqueued transaction is currently being mastered (e.g., the transaction owns the target bus by sending a read address on the target bus, or the target has responded and is inserting wait states or the target is transferring data to the bridge) and whether there is a sufficient amount of the requested read data received by the bridge and stored in the data buffer. See col. 3, lines 13-22. Both conditions must be met before any of the data is delivered to the initiator from the target. See col. 3, lines 23-41. Until the second condition is met, the bridge inserts wait state (or uses other techniques) to hold the initiating bus until the data buffer has a sufficient amount of data. See col. 3, lines 42-53. Accordingly, the initiator is *already connected* to the bridge, and has already taken ownership of the bus, when the bridge determines that the conditions are met for transferring data. Therefore, Eskandari does not disclose *connecting the multi-channel PCI device to the PCI bridge, in response to determining that the pre-fetch buffer is a first filled buffer while monitoring each of the first and second pre-fetch buffers to determine if the fill level of a buffer meets or exceeds its buffer fill watermark*, as required by claim 8.

Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 8 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 8 under 35 U.S.C. § 102(a) be withdrawn.

Given that claims 9-16 and 19-21 depend from independent claim 8, which is patentable over the cited reference, Applicant respectfully submits that dependent claims 9-16 and 19-21 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 9-16 and 19-21 under 35 U.S.C. § 103(a) be withdrawn.

CLAIMS 22-27

Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over admitted prior art in view of Eskandari. Applicant respectfully submits that claim 22 is

patentable over the combination of cited references for reasons similar to those presented above with respect to claim 8. Accordingly, Applicant requests that the rejection of claim 22 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 23-27 depend from independent claim 22, which is patentable over the cited references, Applicant respectfully submits that dependent claims 23-27 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 23-27 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

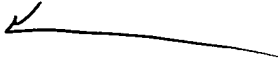
It is respectfully submitted that in view of the amendments and remarks set forth herein, the rejections and objections have been overcome. If the Examiner believes a telephone interview would expedite the prosecution of this application, the Examiner is invited to contact Michael Mallie at (408) 720-8300.

If there are any additional charges, please charge them to Deposit Account No. 02-2666.

Respectfully submitted,

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